

عنوان مقاله:

Network Debottlenecking and Flow Assurance Optimization for an Offshore Field in Sout east Asia

محل انتشار:

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نویسندگان:

Fatemeh Mehran, - SPE

Ali Didanloo, - Schlumberger

خلاصه مقاله:

Hai Su Trang (HST) – Hai Su Den (HSD) fields are located in the Cuu Long Basin, in block ۱۵-۲/۰۱ with approximately ۶۰ km away from Ba Ria – Vung Tau, the Southern coast of Vietnam. This field has complex facility infrastructure consisting of one well head platform HSD and one well head separation platform HST. TLJOC recently faced some operational challenges such as instability and even system shutdown and as the operating safety is very critical for this offshore field, they have started the investigation on finding solution for more efficient operational condition. In TLJOC system, debottlenecking of the three separates network including oil, water injection and gas lift network were typically needed for entire field life to maximize the production rate and avoid any further system shutting in future. In addition, there were few changes in reservoir system such as increasing perforation zone for some of the wells to enhance production rate which should be simulated in advance to make sure of facility capability and flow assurance. Furthermore, finding root cause of bottlenecking and controlling operational condition to avoid the exceed limitations was very critical for asset team. All production units were modelled and analysed for current condition and future operational condition base on reservoir management plan. The several scenarios based on TLJOC- RMP cases has been run and result got evaluated to make sure facility pipelines and equipment have enough capacity and at the same time there will be no integrity in pipeline such as slug issue. Also, additional cases were defined for possible upcoming event such as dropping or increasing facility unit pressure or decreasing water injection pressure to have better view of system health and capacity for entire life of field. The results of analysis prove that in oil pipeline the slug flow pattern exist in most of cases, as one of key reasons for recent operation issues. Recommendations are either control the operation condition of riser to mitigate slug or to control separator pressure in order to reduce slug. Another recommendation was to maintain the liquid level in separator based on certain level to avoid slugging. Based on back pressure effect analysis this system has capacity to increase production up to ۲۰ %, however ۱۵% increase is more efficient operationally. The water injection and gas lift network can handle all possible event and have no problem with capacity only need to keep monitoring the junction pressure to not fall or exceed the operational and integrity limit.

کلمات کلیدی:

Flow Assuranve, Optimization Facility Network Offshore, Debottlenecking

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